CLAIMS

What is claimed is:

power cord

A 1. A ~~cord for a~~ footwear/outerwear heater comprising:

a plurality of a first type of wires having a predetermined tensile strength and a predetermined conductivity; and

a plurality of a second type of wires having a second tensile strength that is less than the predetermined tensile strength of the first type of wires and a conductivity that is greater than the predetermined conductivity of the first type of wire.

2. A cord as claimed in claim 1, wherein the first type of wire is steel wire and the second type of wire is copper wire.

3. A cord as claimed in claim 1, wherein the pluralities of first and second types of wires are positioned in a concentric arrangement.

4. A cord as claimed in claim 3, wherein the plurality of first and second types of wires are positioned such that the first type of wires forms the outermost circular arrangement in the cord.

5. A cord as claimed in claim 1, wherein the first and second types of wires are arranged in a linear sequence and where a plurality of the second type of wires is sandwiched between a first wire of the first type of wires and a second wire of the first type of wires.

6. A cord as claimed in claim 5, wherein the pluralities of the first and second type of wires are positioned in a cover insulation.

7. A cord as claimed in claim 6, wherein the cover insulation is made from PVC.

8. A footwear/outerwear heater comprising:

a heating element including

a first layer of conductive material having a first segment with a predetermined size and a second segment having a second size that is greater that the predetermined size of the first segment;

a second layer of conductive material; and

a layer of resistive material sandwiched between the first and second layers of conductive material; and

a control circuit for selectively energizing the first segment, the second segment, or both the first and second segments of the first conductive layer of the heating element.

9. A footwear/outerwear heater as claimed in claim 8, wherein the layer of resistive material is a layer of metal-filled resin.

10. A footwear/outerwear heater as claimed in claim 9,wherein the layer of resistive material is a layer of polyanilin.

11. A footwear/outerwear heater as claimed in claim 8, wherein the resistive layer has a thickness of about 0.03 mm to about 0.5 mm.

12. A footwear/outerwear heater as claimed in claim 8, wherein the resistive layer has a conductivity of between about 10^{-9} S/cm and about 10^{-2} S/cm.

13. A footwear/outerwear heater as claimed in claim 8, wherein the resistive layer is screen-printed.

14. A footwear/outerwear heater comprising:

a heating element including,

a first layer of conductive material having a first segment with a predetermined size and a second segment having a second size that is greater that the predetermined size of the first segment,

a second layer of conductive material, and

a layer of resistive material sandwiched between the first and second layers of conductive material;

a control circuit for selectively energizing the first segment, the second segment, or both the first and second segments of the first conductive layer of the heating element; and

a cord connected to the heating element, the cord including

a plurality of a first type of wires having a predetermined tensile strength and a predetermined conductivity;

a plurality of a second type of wires having a second tensile strength that is less than the predetermined tensile strength of the first type of wires and a conductivity that is greater than the predetermined conductivity of the first type of wire.

15. The footwear heater as claimed in claim 14, wherein the first type of wire is steel wire and the second type of wire is copper wire.

16. A cord as claimed in claim 14, wherein the pluralities of first and second types of wires are positioned in a concentric arrangement.

17. A cord as claimed in claim 16, wherein the plurality of first and second types of wires are positioned such that the first type of wires forms the outermost circular arrangement in the cord.

18. A cord as claimed in claim 14, wherein the first and second types of wires are arranged in a linear sequence and where a plurality of the second type of wires is sandwiched between a first wire of the first type of wires and a second wire of the first type of wires.

19. A cord as claimed in claim 18, wherein the pluralities of the first and second type of wires are positioned in a cover insulation.

20. A cord as claimed in claim 19, wherein the cover insulation is made from PVC.

21. A footwear/outerwear heater as claimed in claim 14, wherein the layer of resistive material is a layer of metal-filled resin.

22. A footwear/outerwear heater as claimed in claim 14, wherein the layer of resistive material is a layer of polyanilin.

23. A footwear/outerwear heater as claimed in claim 14, wherein the resistive layer has a thickness of about 0.03 mm to about 0.5 mm.

24. A footwear/outerwear heater as claimed in claim 14, wherein the resistive layer has a conductivity of between about 10^{-9} S/cm and about 10^{-2} S/cm.

25. A footwear/outerwear heater as claimed in claim 14, wherein the resistive layer is screen-printed.

26. A method of heating an outerwear or footwear item, the method comprising:

positioning a heating element with at least two segments in the item;

providing power to the heating element through a cord having a first type of wire with a first conductivity and a second type of wire with a second conductivity; and

selectively supplying power to the two segments to control the amount of heating of the item.